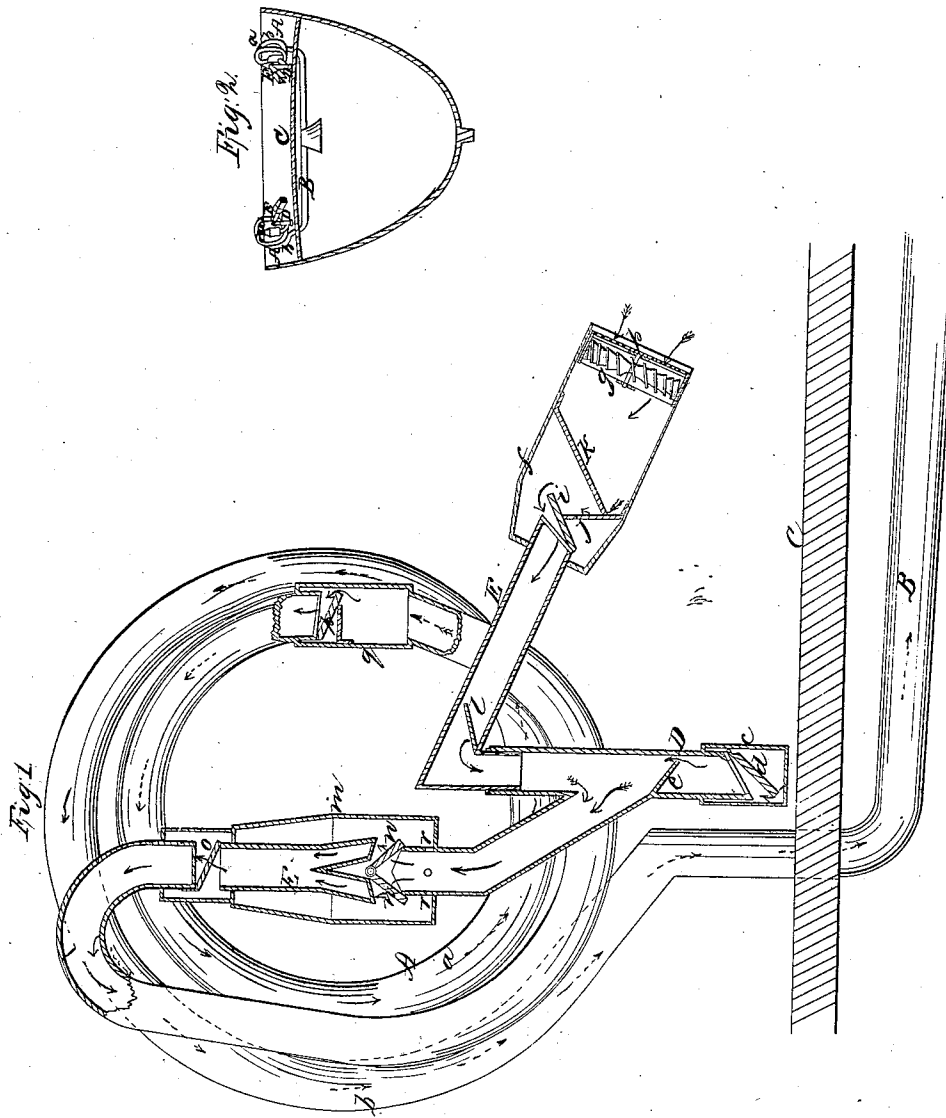


E. Bahr,
Ship Ventilator,

No 12,992,

Patented June 5, 1855.



UNITED STATES PATENT OFFICE.

ERNEST BAHR, OF ROCHESTER, INDIANA.

SHIP-VENTILATOR.

Specification of Letters Patent No. 12,992, dated June 5, 1855.

To all whom it may concern:

Be it known that I, ERNEST BAHR, of Rochester, in the county of Fulton and State of Indiana, have invented a new and Improved Ship-Ventilator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side view of my improvement certain portions of the helical tube being bisected in order to show the valves and guard plates therein. Fig. 2, is a small transverse section of a vessel showing the connection of the improvement to an inverted conical funnel underneath the deck.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to a new and improved ship ventilator, and consists in placing within a helical tube a series of valves and guards arranged as will be presently shown and described.

A represents a helical tube formed of two coils (*a*) (*b*), one of which (*b*) is connected to a horizontal tube B underneath the deck C of the vessel. The end of the other coil (*a*) extends upward and then passes downward and terminates in a fork or two ends D, E, one of which D is so arranged as to turn so that it may be made to face the wind. The two ends D, E, being above the deck C. The end D is in a vertical position and the end E is in an inclined position not differing very much from a horizontal position. The coils (*a*) (*b*) may be about two and a half feet in diameter and the tubing of a proper diameter.

The lower part of the end D terminates in a small rectangular chamber (*c*) and has a valve (*d*) attached to it opening downward, see Fig. 1, and a short distance above the valve (*d*) there is secured within the tube a guard plate (*e*) which is in an inclined or oblique position and extends nearly across the tube leaving a space sufficient for the air to pass through. The outer end of the part E has also a rectangular chamber (*f*) attached to it, having a wind wheel (*g*) at its outer end and a covering of wire cloth (*h*). At the end of the tube there is attached a valve (*i*) opening outward and supported by a prop (*j*). Between the valve (*i*) and wind wheel (*g*) within the

chamber (*f*) there is an inclined guard plate (*k*) which extends downward within a short distance of the bottom of the chamber (*f*), and at the joint or elbow of the tube there is a guard plate (*l*).

On the vertical portion of the coil (*a*) there is placed a rectangular chamber (*m*) which communicates with the tube or coil (*a*) the tube passing into its upper and lower ends, the lower end or portion of the tube having two flap valves (*n*) (*n*) placed over it which valves work between a fork at the lower end of a detached tube E within the chamber (*m*) and the end of the tube (*a*). The upper end of the detached tube E, and the end of the tube (*a*) has a valve (*o*) fitted between them. Within the coil (*a*), its circular part, there is a valve (*p*) also placed within a rectangular chamber (*g*) similar to the other above mentioned.

One or more helixes A may be attached to the deck C, and communicate with the horizontal tube B underneath the deck, said tube having an inverted funnel shaped discharge opening F, see Fig. 2.

The air enters the ends of the chambers (*c*), (*f*), a hole being made in the lower end of the chamber (*c*). The wheel (*g*) rotates and gives a draft, or impetus, to the current. The air passes around the guard plate (*k*) and valve (*i*) and into the tube (*a*) and then around the guard plate (*l*) and so on around all the valves and plates above described and enters the tube B and is discharged into the vessel through the discharge opening F.

The above invention is designed to prevent water from entering the vessel through the ventilator, while air is admitted. This is important because the decks are often swept over by the waves. Now if the water is forced up in the end D it will probably close the valve (*d*), or if any escapes through it will be checked by the guard plate (*e*). The same effect will be obtained by the water entering the end E, the guard plate (*k*) and valve (*i*) obstructing its entrance into the tube (*a*), but still if it should pass up the vertical portion of the tube (*a*) there are two valves (*n*) (*n*) to check or prevent its entrance into the tube E and the water will flow back through side apertures (*r*) (*r*) into the vertical part of the tube (*a*). The same obstruction is presented to

the water by the valves (*o*) and (*p*), and if any water should lodge in the bottoms of the coils it may be let off by stop cocks.

The end E as previously stated is turned 5 by the hand so as to face the wind.

It will be seen that the water will be effectually prevented from entering the vessel through the ventilator, and at the same time the air is allowed to pass through unob- 10 structed. The valves may be constructed of cork or other light substance so as to be easily acted upon by the water.

What I claim as new and desire to secure by Letters Patent, is—

The helical tube A provided with valves 15 (*i*) (*d*) (*n*) (*o*) (*p*) and guard plates (*k*) (*l*) (*e*) as herein shown. One end of the helix terminating above the deck C in two parts D, E, the part E being provided with a wire wheel (*g*) and wire cloth covering 20 (*h*), said part E being movable so that it may be turned to face the wind at all times, for the purpose set forth.

ERNEST BAHR.

Witnesses:

LUNNEY KEITH,
W. H. SLOCUM.